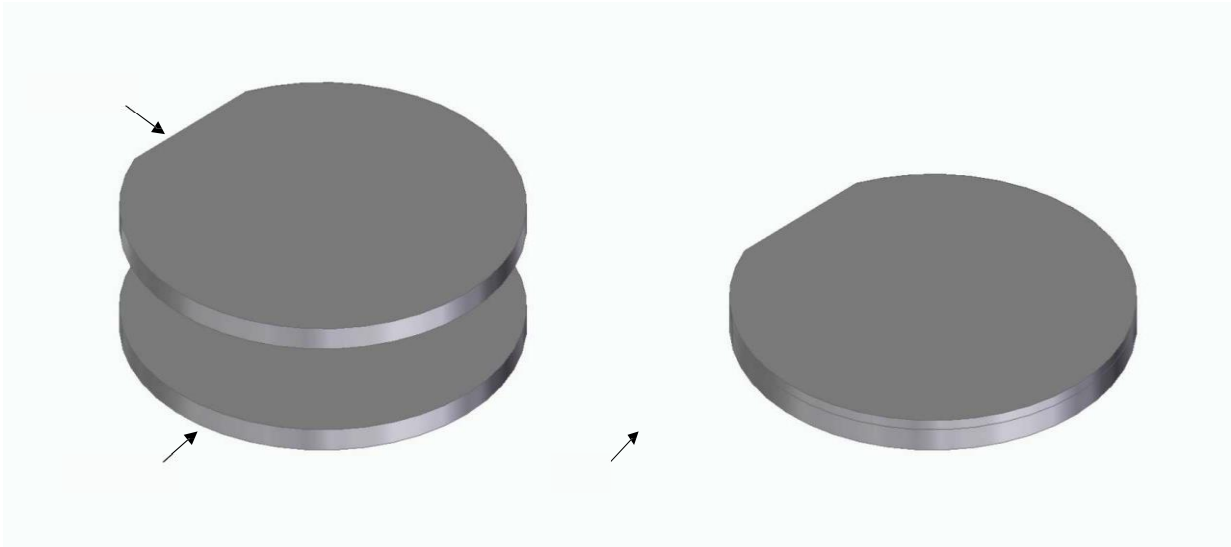


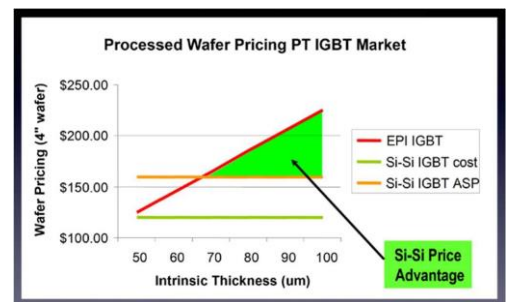
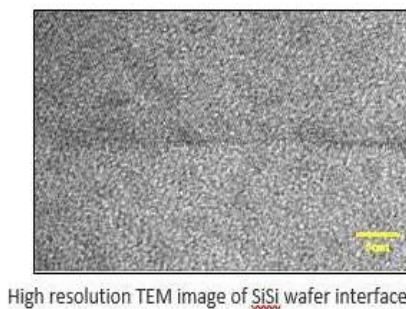
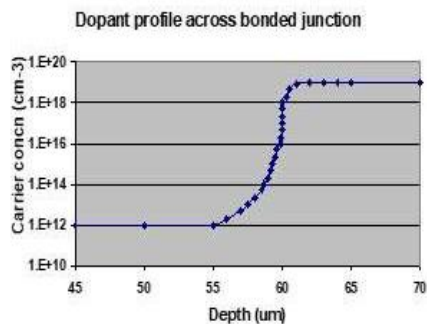
硅-硅直接键合晶片 SI-SI Solutions



我司提供的硅-硅直接键合晶片可以经济有效地替代传统厚外延层和逆外延片，可用于功率器件和引脚二极管等应用领域。晶片直接键合技术可以生产含有多层单晶硅的硅基板，各层的电阻率范围是 1 mΩ/厘米—10 kΩ/厘米，晶体方向可以是 N 型、P 型或两者的组合，这是传统外延晶片所无法达到的。

The BonTek Silicon - Silicon Direct bonded wafer offers a cost effective alternative to thick epitaxial layers and inverse epi that have traditionally been used for applications such as power devices and PiN diodes.

The use of direct wafer bonding technology allows silicon substrates to be produced containing multiple layers of single crystal silicon. These layers can have a resistivity range 1mΩ-cm to 10kΩ-cm, N and P-type and can include combinations of orientations - a feature not possible with conventional epitaxial wafers.



硅-硅直接键合工艺可制造出低泄漏、低翘曲度和低缺陷密度的高质量晶片，层厚度公差仅为 ± 0.5um。根据客户的要求，高、低掺杂水平之间的过渡可以是陡峭的，也可以是缓和的。

The BonTek Si-Si bonding process gives a high quality wafer with low leakage, low warp and a low defect density. Additionally, the thickness variation in the layers can be as little as +/-0.5um. The transition between high and low dopant levels can be sharp or soft, depending on the application or customer requirement.



加工能力 processing capacity

Parameter 参数	Specification Range 尺寸规格范围	
Wafer Diameter 直径	100, 125, 150 mm	200 mm
Handle Layer Specifications 衬底层规格		
Handle Thickness 衬底层厚度	200-1100 μm	450-1100 μm
Handle Thickness Tolerance 厚度公差	$\pm 5 \mu\text{m}$	
Stack Thickness 板叠厚度	280-1150 μm	
Dopant Type 掺杂剂类型	N or P	
Doping 掺杂	N type: Phos, Red Phos, Sb & As P type: Boron	
Resistivity 电阻率	$\leq 0.001 - \geq 10000 \Omega\text{-cm}$	
Growth Method 生长方式	CZ, MCZ or FZ	
Crystal Orientation 晶体定向	$\langle 100 \rangle$, $\langle 111 \rangle$ or $\langle 110 \rangle$	
Backside Finish 背面处理	Lapped/Etched or Polished	
Device Layer Specifications 顶层规格		
Device Layer Thickness 顶层厚度	$\geq 1.5 \mu\text{m}$	$\geq 5 \mu\text{m}$
Tolerance 公差	$\pm 0.5 \mu\text{m}$	$\pm 0.8 \mu\text{m}$
Dopant Type 掺杂剂类型	N or P	
Doping 掺杂	N type: Phos, Red Phos, Sb & As P type: Boron	
Resistivity 电阻率	$\leq 0.001 - \geq 10000 \Omega\text{-cm}$	
Growth Method 生长方式	CZ, MCZ or FZ	
Crystal Orientation 晶体定向	$\langle 100 \rangle$, $\langle 111 \rangle$ or $\langle 110 \rangle$	
Buried Layer Implant 埋层植入	N type or P type	

Applications 应用方向:

High Voltage PIN Diodes 高压引脚二极管
 RF Attenuators 射频衰减器
 Photo Detectors 光电探测器
 X-Ray Detectors X 射线探测器
 IR Sensors 红外传感器
 HV Power Devices 高压电力设备
 Replacement for Epitaxial layers 替换外延层

Key Features 主要特点:

High Quality 高质量
 Low cost 低成本
 Low defect density 低缺陷密度
 Excellent Layer uniformity 优秀的层均匀性
 Multiple layers 多层
 Sharp transitions 过渡
 Layer resistivity up to 10k $\Omega\text{-cm}$ 电阻率高达 10k $\Omega\text{/cm}$
 Excellent interface quality 优良的接口质量

上海磷钛光电技术发展有限公司

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